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Energy Opportunities

THINKING GREEN ENERGY? THINK FARMING!

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INTRODUCTION

When Ontarians think "Green Energy," they should think of farming. Green energy is becoming another crop that Ontario farmers can harvest. Many green energy opportunities are available in rural Ontario. This Factsheet outlines five of these green energy opportunities for farmers.

HARVESTING THE WIND

Wind turbines require large areas of open space with consistent wind (see Figure 1). The prime landscapes for wind energy production in Southern Ontario are almost always in farming regions. Wind turbines and farming can exist together on the same piece of land. Wind turbine developments are being developed by both private investors and by co-operatives that include farmers.

Figure 1. Wind turbines can provide significant energy capacity for the grid.

MANURE AND ORGANIC WASTES — ANAEROBIC DIGESTION

Most people don't think of green energy when they think of manure or of food processing wastes. Manure and various organic wastes can be mixed in an anaerobic digester to produce biogas (see Figure 2). Biogas, a form of methane, can be converted to electricity and heat. These systems are economically viable and are beginning to be adopted on farms in Ontario. In addition to providing green energy, processing manure and wastes in this way provides other benefits, including reduced odour and pathogens, and new waste management solutions. Biogas can be stored until it is needed for energy production to meet peak power demand.

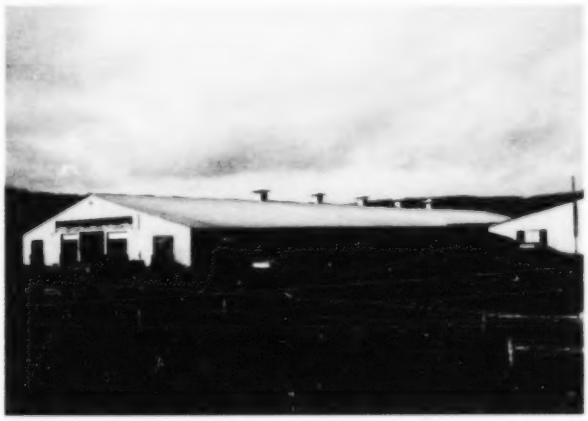

Figure 2. A farm-based anaerobic digester.

ENERGY CROPS FROM THE FIELD

When Ontarians fill up at the gas station, they can now see gas pumps with ethanol and biodiesel blends. Ethanol for fuel is typically created from corn. A number of ethanol facilities are currently operating in the province, and several more are in the final planning stages. Ontario's high-yielding corn crops are providing new energy and reduced emissions.

Biodiesel can be created from a variety of agricultural materials, including soybeans and by-products from food production. The first commercial-scale biodiesel

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production facility in Canada is currently under construction in Hamilton.

Mixing energy crops in anaerobic digesters provides a new opportunity to harvest even more energy per hectare of cropland than biodiesel or ethanol. Energy crops such as corn-silage can be stored for year-round use in digesters. These crops provide tremendous volumes of biomass to add to digesters and appear to be a promising opportunity for energy and revenue generation.

ENERGY FROM BIOMASS

Biomass such as wood waste or energy crops such as high-yielding grasses can generate power in high-efficiency combustion systems to produce heat, power or bio-oils. The renewable feedstocks for these systems can be readily grown in rural Ontario. New high-efficiency biomass conversion systems have very low emissions, moving this technology into the 21st century.

SOLAR POWER (PHOTOVOLTAICS)

The sun is a constant source of energy. European experience shows that the best place to build solar panels is in rural areas where the air quality is high (see Figure 3). Southern Ontario has high solar exposure which — when combined with high energy prices and the need for renewable energy — means that solar collectors in farming areas will soon become a common sight.

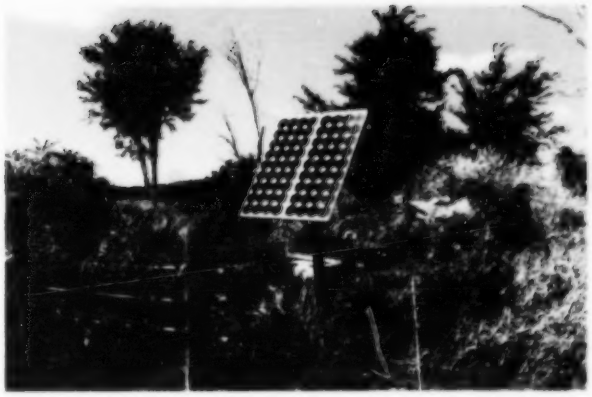

Figure 3. A solar panel.

FARMING: AT THE FRONTIER IN GREEN ENERGY

As green energy systems take hold in Ontario through improved pricing regimes and increased consumer demand, farmers will be able to provide another resource to help grow our economy. When you think green energy, think farming!

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